

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

"O fortunatos nimium sua si bona norint
Agricolae." VIRG.

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INTERNAL IMPROVEMENTS.

[The great advantage which must result to all classes of citizens, by multiplying and cheapening the means of internal commerce, has come to be generally understood and acknowledged—and we may reasonably suppose, that under the combined influence of the want of external commerce, for the employment of capital, and of the existing active spirit for internal improvements, the present routes of inter-communications between different districts of country, will be shortened and improved—and the fruits of the nursery, and the produce of the plough, which are now valueless for want of easy transport to market, will yield to the laborious husbandman a liberal reward.]

Seeing then, the probability that large investments of the public resources, and of individual capital, are to be made in the stock of highways—it is obviously an object of the first consideration, that those under whose management these investments are to take place—should, in the first place understand, according to the principles of science which belong to the case, the most economical, solid and effectual manner of doing the work.

Under this view we have selected from the LXIV number of the Edinburgh Review, the following article, not doubting that our subscribers will find in the interest of the subject, a sufficient apology for the length of the essay—considering the comparative infancy of all our institutions, we are not to be reproached for want of enterprise in attempts to improve the means of internal correspondence and intercourse, but, may we not well inquire, especially with respect to Turnpike Roads, whether these efforts have not been most awkwardly, unskillfully and in most particulars ineffectually conducted? In a great number of instances, the whole system has been organised on wrong principles and the result naturally is, that many of our turnpike Companies instead of receiving tolls, ought to be made to pay the Smith for the shoes broken—travellers for loss of time by slow travelling, and sometimes the Doctor for the restoration of dislocated or broken limbs—without mentioning some near at home, we will instance the turnpike, so called, from Middleburgh to Alexandria—where the traveller is ever & anon required to pay for being jolted to death on a road, which seems to have been studiously made with a view to give employment to the Horse Doctor and the Wheel-right—Two or three disinterested citizens, acquainted with the science of road making, ought to be paid to superintend our turnpike roads, with power to suspend the payment of toll, or not, according to the state in which the road is kept by the Companies—either this or some other equally effectual method should be adopted.

An Essay on the construction of Roads and Carriages. By RICHARD LOVELL EDGEWORTH, Esq. F. R. S. M. R. I. A. London, 1813.

In the absence of all higher grounds of congratulation, it is no doubt consolatory to see the time of Parliament so much occupied with subjects of Economic Polity, and to find that, in this department at least, sound principles are making so much way against those ancient prejudices, and mischievous habits, which have so long stood in the way of necessary reformations. Of the many subjects of internal economy which were submitted to the consideration of Committees of the House of Commons in the last session, there is none which is more

immediately interesting to the public than the state of the Highways of the kingdom; for, next to the general influence of the seasons, upon which the regular supply of our wants and comforts depend, there is perhaps no circumstance more interesting to men in a civilized state, than the perfection of the means of interior communication.

Although it is common for Englishmen to boast that no foreign country possesses, in so great a degree, the advantages of numerous roads as England, it ought always to be remembered, that there is a vast difference between a road without form or solidity, and which is nothing more than an open space in an enclosed country, along which travellers and carriages may pass, and a road fit to allow of carriages being drawn with rapidity, with little labour to the horses, and perfect security to the passengers. But this way of viewing the subject has been little considered, and our southern fellow-subjects have hitherto been willing to put up with a very absurd system of road-making and management, and with roads in all essential points extremely defective. The evidence, for instance, contained in the Reports at the head of this article, shows how great a difference there is between a hard and a soft road, that is, between a good one and a bad one; and how much property is wasted, by more horses being employed on bad roads, than are necessary on good roads. Mr. Walker says, with regard to the paved commercial road from London to the West India docks, that he does not overstate the advantage of paving, when he says that two horses will do more work upon such a road, than three upon an ordinary, or even a good gravelled road. Supposing the loads annually carried on this commercial road to be 250,000 tons, at the rate of 3s. a ton, which is the established price, in place of 4s., which is the price on gravelled roads, the annual saving would be 12,500*l*. He further states, that the East India dock branch has not cost 20*l* in the repairs of the paving in thirteen years. Mr. Waterhouse, Mr. Horne, and Mr. Eames, three of the principal coachmasters in London, say, that where the roads are smooth and hard, eight horses, on an average costing 15*l*. each, will work a stage coach over twelve miles through a year, at the rate of eight miles an hour, and that they will last, one with another, for six years; but that, where the roads are heavy, twelve horses, costing 30*l*. each, are necessary for twelve miles; and these will last only from three to four years. Mr. Foment of Thatcham, who works different coaches above 500 miles a day, says, he has killed some hundred horses (extra) in pulling through dirty gravel heaped up in the middle of the road; and that he is convinced one-third less labour is required to work a fast coach over part of the road between Reading & London, where Mr. M'Adam's plan has been adopted, than is necessary over other parts of the road, where they still continue the old plan.

What makes it at this time particularly necessary to inquire into the soundness of the system, by

which the turnpike roads are managed, is the rapidity with which additional tolls are every where established, and the debt which is owing by the different trustees still further increased. Mr. M'Adam states in his evidence, that in the years 1816, 1817, and 1818, no less than ninety petitions were presented to the House of Commons for bills to levy additional tolls. Mr. Waterhouse says, that the tolls on the roads which his coaches travel have been doubled in the last fifteen years. Mr. M'Adam computes the road revenue of England and Wales at no less than one million and a quarter; and the total debt due by the trusts at seven millions. And when it is considered how easy it generally is for a body of turnpike commissioners to obtain a new act, to levy additional tolls, whenever they think proper, and that money may be borrowed by them on the security of the tolls *ad libitum*, it is surely high time to inquire whether the system of leaving the management of so large a revenue to numerous bodies of irresponsible local commissioners, ought to be continued any longer.

If the roads had been improved in a degree corresponding with the additional tolls and increasing debts, there might be little reason to complain: but this is so far from being the case, that the concurrent testimony of all the witnesses goes to establish a very opposite result. Mr. Telford, for example—a most competent judge—says, 'With regard to the roads of England and Wales, they are in general very defective, both as to their direction and inclinations; they are frequently carried over hills, which might be avoided by passing along the adjacent valleys; the shape, or cross-sections, and drainage of the roads, are quite as defective as the general direction and inclinations; there has been no attention paid to constructing good and solid foundations; the materials, whether consisting of gravel or stones, have seldom been sufficiently selected and arranged; and they lie so promiscuously upon the roads, as to render it inconvenient to travel upon them,—so to promote their speedy destruction. The shape of the road or cross-section of the surface, is frequently hollow in the middle; the sides incumbered with great banks of road dirt, which have accumulated in some places to the height of six, seven, and eight feet; these prevent the water from falling into the side drains; they also throw a considerable shade upon the road, and are gross and unpardonable nuisances. The materials, instead of being cleaned of the mud and soil with which they are mixed in their native state, are laid promiscuously on the road: this, in the first place, creates an unnecessary expense of carriage to the road, and afterwards nearly as much in removing it, besides inconvenience and obstruction to travelling.'

This description of the turnpike roads of England and Wales does no great credit to the ability and attention of the country gentlemen who have the entire management of 1,250,000*l* of annual revenue. In a country where the numerous magnificent

bridges, docks, harbours and canals, testify so proudly to the talents of British engineers, it is not a little strange to find no trace of skill, or a particle of science, except in a few recent instances, throughout the whole extent of the turnpike roads. There surely must be something in the composition of an English turnpike trust, of a nature most abhorrent from science, to have thus completely excluded our great national acquirements in civil engineering from one of the leading branches of the profession. The consequence is, that, in respect to roads, England stands, confessedly, far behind Ireland and Scotland; and is even greatly outdone by France, whose great roads, at least, are remarkably perfect in regard to direction, inclinations and cross-sections, and also as to the state of the surface,—unless the government lays hands upon the funds applicable to repairs.

The causes of this universal mismanagement, may perhaps receive some explanation by attending to the constitution of a trust, as established by the Legislature under the usual provisions of a turnpike act. The fundamental principle is always to vest the whole management in the hands of the country gentlemen; and as they act gratuitously, it has been the policy of the law to appoint in each act a prodigious number of commissioners—frequently from one hundred to two hundred, for the care of ten or fifteen miles of road: and thus a business of art and science, is committed to the discretion of a promiscuous mob of peers, squires, farmers and shopkeepers, who are chosen, not for their fitness to discharge the duty of commissioners, but from the sole qualification of residence within a short distance from the road to be made or repaired. The consequences are, as might be expected that the whole time at these meetings, is occupied in tumultuous and unprofitable discussions, and in resolving on things at one meeting, which run a good chance of being reversed at the next; that the well informed and civilized commissioners become very soon disgusted with the disorderly uproar, or the want of sense, temper or honesty of some of their companions; and that the management finally falls into the hands of a few busy, bustling, interested persons of low condition, who attend the meetings with no idea of performing a public duty, but for the purpose of turning their powers, by some device or other, to the profit of themselves, or of their friends and relations.

The origin of a plan, so radically wrong, may be traced to the vulgar notion, that there is nothing so easy as to make or repair a road; and as it is even now-a-days a very common doctrine, that every one is born a good roadmaker, it may be of use to show, very briefly, how far road-making is an art, and in what way the aid of science may be serviceable. As there is no where any very great extent of country free from bogs, ravines, precipices, rivers, hills or mountains, it is plain, that to lay out a line of road which shall be as short as possible between two places, and yet without any great declivities; and avoiding all local difficulties in the most effectual and economical manner, must require some considerable portion both of skill and experience. In forming a road, therefore, to the best advantage, whoever undertakes it, ought to be accurately acquainted with the sciences of levelling, surveying and mensuration; he should be thoroughly well versed in the best practical methods of removing

large quantities of earth; he must understand the principles and the practice of building abutment walls and bridges, and of draining land. For forming the surface of a road, he ought also to know many of the mineralogical qualities of stones and other hard materials; and practically how to clean or break them, and how to manage the disposing of them so as to give the road a proper form, and to secure the greatest possible degree of smoothness, solidity, and durability. These are a few of the preliminary qualifications to be acquired by a person before he can be entitled to the name of a tolerable good road-maker. Yet how few commissioners possess any of them, or have ever dreamt of their necessity! In point of fact, the state of the roads displays no symptoms of well qualified commissioners. They leave the art and science of the business to their surveyor,—who is commonly just as much in the clouds as themselves, as to his own proper calling. With a laudable veneration for his forefathers, he proceeds according to the ancient system of things, without plan or method; and, fearing no rivalry, and subject to no intelligent control, he proceeds, like his predecessors, to waste the road money on team-work and paupers, and leave nothing for the public like a road, but the name and the cost of it.

Whenever other extensive works requiring the employment of various sorts of labour are undertaken, the constant practice is, to have a plan and specification made out of all the particular things to be done, with an estimate of the expense—and a contract entered into for the performance of them, and a rigid inspection to ascertain that all the conditions are complied with before the money is paid. But turnpike commissioners scarcely ever require any plan or specification of the work to be done; but leave the surveyor to spend the money as he pleases: There is no inspection of the work he executes; he merely hands in his bill to the treasurer, and receives what is due by his own showing. Although ninety-nine people out of a hundred believe a surveyor to be a professional peculator, the inquiries of the Committees did not go far enough to establish the correctness of this opinion. It is waste, probably, and not robbery, that is mostly to be complained of. Waste in every way,—by unnecessary team work; by employing old parish paupers as labourers; by bills of costs; by making use of badly prepared materials; by leaving the roads in such a shape that they are constantly wet; in consequence of which, the materials put upon them are immediately destroyed. Mr. M'Adam says, 'This waste of public money, I conscientiously believe, amounts to one-eighth of the road revenue of the kingdom at large, and to a much greater proportion near London.'

The small extent of road of which most turnpike districts consist, is another great defect of the system; because the funds are seldom sufficient to allow of employing a qualified surveyor. But notwithstanding this defect, surveyors would be better than they are, if the best that could be got were always appointed. In place of this, however, it is matter of general notoriety, that the appointment, nineteen times out of twenty, is a perfect job. The following is a small specimen, taken from the evidence before us. 'Question—When was the present surveyor appointed? Answer, I believe he was appointed two years and half ago.—

What station in life did he fill before? I believe he was a miller in the neighbourhood of St. Albans, under Lord Verulam; there was a serious objection to his appointment by several of the commissioners, who brought forward a proper person qualified for the situation.—In what state did you find the executive department of these roads when you took charge of them? I found at Epsom a person us surveyor, who had been an undertaker at Lloyd's Coffee-house, at a salary, as I am informed, of 60*l.* a year, and who was allowed to keep the carts and horses, and do the cartage of the trust. I found at Cheshunt three surveyors; one an infirm old man, another a carpenter, and another a coal merchant. I found, on the Wadesmill trust, three surveyors also; one of them was a very old man; another a publican at Buckland; and another a baker at Barkway. I found on the Royston road a publican as surveyor; and I found at Huntingdon a bedridden old man, who had not been out of his house for several months.

Another great defect in the system of turnpike law, is the want of a provision to compel each trust to account, before some competent tribunal.—Road commissioners are the only persons entrusted by Parliament to levy a large revenue from the public, without being required to account in any way for what they receive. A still more glaring defect is, the want of any proper remedy when a set of commissioners abuse their trust. They may suffer their road to become a perfect ruin; they may embezzle the funds, and commit every sort of malpractice, and yet go on levying tolls, keeping possession of the road, and defying all complainants. As to the legal remedy of indicting a turnpike road, this is in fact punishing the innocent for the guilty; and every one knows it never operates as an effectual remedy.

In this case, as in most others of inveterate abuse, it is certainly far easier to point out the evil than to provide the remedy. But the first measure perhaps should be, to appoint a Parliamentary Commission, with full powers to ascertain the state of every trust in the United Kingdom; and to report the result to Parliament. It would be too much, perhaps, to repeal at once all the turnpike acts now in force, for the purpose of substituting the more simple and effectual measure of one Board of Commissioners for the whole United Kingdom. All that can be done probably is, to leave them to expire by degrees; and, in the mean time, to pass a general act to oblige each trust to elect four or five Directors, who shall have the whole active management; and providing that, whenever a turnpike act expired, the magistrates of the county should elect five or six commissioners, in whom it should be vested; the debt, if any, to remain secured upon the tolls:—and thus, as each existing act expired, each road would, in succession, vest in the same commissioners; so that, in the end, they would have the management of all the turnpike roads of their county.

In respect to a new road, and the best plan of framing an act of Parliament for making one, it seems to us, that it would be a valuable improvement to allow all persons, who may be willing to subscribe their money, to proceed in the same way as is followed in regard to canals. Let the right of levying certain tolls be granted to the subscribers; the surplus, after paying all outgoings, to be divided as profit. Let the subscribers elect five or

six directors to manage for them; and, in order to protect the public from any neglect on their part, let there be a power given to the Court of Chancery to sequester the tolls, and to appoint commissioners to manage the road, if a sufficient case can be made out against the Road Company.

But, even if there should be no radical change in the present system of turnpike law, a great deal of good may be done by the commissioners under the existing acts, paying more strict attention to their duties. If each trust would appoint a committee of four or five, with full powers to manage every thing belonging to the road repairs, more ability and economy would soon become conspicuous upon the roads: And with regard to the art of making the roads themselves, and the things that are to be attended to by the managers and superintendants, we are sure we cannot possibly do better than to lay before our readers the following extract from Mr. Telford's Report to the Parliamentary Commissioners for improving the Holyhead road. Mr. Telford says—

'It may be useful, in concluding this Report, to recapitulate sundry matters which apply generally to all districts. 1. It appears that, from the interference of a great number of commissioners, (although each well intentioned,) the multiplicity of opinions and directions tends to perplex the surveyors, and prevents the carrying any well-digested scheme steadily into effect; and therefore it would be advisable to have general meetings, say only once or twice a year, in order to receive reports, make general regulations, pass accounts, and elect a committee of five persons, who should manage the executive part of the business, as is the general case with regard to canals. 2. That it is advisable to have, annually, a regular specification made out of what is required to be done in each trust, during the ensuing twelve months, and this work to be let to some respectable contractor, upon conditions distinctly defined; and without any restrictions as to employing old and unfit workmen: it would then become the interest of the contractor to take active measures, both with respect to procuring materials, and using them, and keeping effective persons constantly upon the road. 3. This would relieve the surveyor of all the detail of employing workmen, seeing that they worked faithfully, also as to procuring materials;—all he would have to do, would be to see that the road was conducted, in all respects, agreeably to the specification; and an able and respectable surveyor might in this way attend to at least 30 miles of road, and have an adequate salary. 4. Having distinct specifications, as a written law, all discretionary directions from different trustees, or even the surveyor, would be put an end to: the contractor would know his duty, and could be fairly checked.—5. As to the practical part, it is of importance to keep the surface of the road above that of the adjacent fields; where it is got too low, it should be raised, or removed to fresh ground. 6. The road should be kept open to the sun and air; therefore, cut down and remove high hedges and trees, slope banks, &c. 7. The roadway should be well drained and kept dry; the cross section of the road should be made, and kept of a flat form; the whole curve of thirty feet should not exceed eight or nine inches, the water should never be suffered to run far along the road, before it is conducted into a cross drain, which ought to be particularly attend-

ed to, and conducted into natural water-courses or field ditches. 8. Particular attention should be paid, either to find a naturally dry bottom for the roadway, or to construct one; and avoid, as much as possible, suffering the workable materials coming into contact with clay: And this may always be accomplished by means of gravel, sand, vegetable soil, chalk, or bottoming stones; but this bottoming should be made perfectly firm and regular, so as to receive the top workable metal of an equal thickness. 9. This top workable metal, or layer, or stratum, should be of equal and uniform quality, freed of all clayey or earthy matter, by sorting, sifting, skreening, and, not unfrequently, by washing. If the material be stones, they should be broken, so as not to exceed six ounces for repairing old roads, and eight ounces for making new roads. If it is gravel, all round stones of above one inch should be separated and broken, and put upon the road without any mixture of the smaller stones. 10. The roads should be regularly shaped between the footpaths, or, where there are none, between the fences. This admits the water to get off freely, or to evaporate by the action of the wind and sun. In the country, about 16 or 18 feet in the middle of the road should be made and repaired with broken quarry stone, or broken gravel stone; the sides may be made and repaired with inferior materials; But near large towns, or where there is much traffic, the whole breadth should have broken stone. 11. Where a road has been originally constructed, or by improvement brought into what is here described, it should never be suffered to go into desrepair. This is to be accomplished by unremitting and judicious attention, so that no water be suffered to lie on the road, but, as a defect occurs, to have it immediately remedied by thin coats of hard materials frequently applied.—The making and maintaining roads should be considered as a separate business. Workmen should be bred, and induced constantly to apply themselves to road-work only, the same as any other distinct trade. They would then become acquainted with the quality of materials, and the proper method of using them; and contractors, by attending to roads only, would acquire experience, and have better profits from lower prices. Hitherto road-making and repairing have not had sufficient importance attached to them.

Mr. McAdam on the same head says,

'Now, the principle of road-making I think the most valuable, is to put broken stone upon a road, which shall unite by its own angles, so as to form a solid hard surface. What I find fault with in putting quantities of gravel on a road is, that before it becomes useful, it must move from its situation, and be in constant motion. The defects of the roads proceed principally from the large use of a mixture of clay and chalk, and other matters that imbibe water, and are affected by frost. Such roads become loose in wet weather, so as to allow the wheels of carriages to displace the materials, and thereby occasion the roads to be heavy and rutty. In digging gravel in places where there is loam adhering to it, I recommend to leave the small part of the gravel in the pits, and to make use of the larger part only; which can be broken, for the double purpose, first, of having the gravel stone laid upon the road in an angular shape; and, secondly, because the operation of breaking quarry

stone is the most effectual operation for beating off the loam that adheres to the pieces of gravel.'

It is very satisfactory to collect from the reports, that all the improvement that can be desired in respect to the repairing the roads, may be obtained without any new charge to the public. In the Bristol district, the commissioners incurred a debt of 43,000*l.* in 20 years, and had the roads in a very bad state. Mr. McAdam, with the same annual income, in three years, made them excellent roads—paid off a floating debt of 1400*l.* made a considerable reduction in the principal debt—and, at the last settlement, had a balance in hand of 2790*l.* At Epsom, the roads have been put into a good state of repair by the same person, at an expense considerably under the former annual charge. The road between Reading and Twyford has been made solid and smooth, in the course of twelve months, at an expense of 15*l.* per week,—the former expenditure being upwards of 22*l.* per week. The truth is, as admitted by experienced road-clerks, who are in general more fit to manage a trust than the commissioners, that the practice of employing men past hard labour, to take them off their parishes, and relieve the poor-rates, has become so general, that the road-revenue is now a regular poor-fund, and the labour performed by each man, is not worth more than one fourth of a good day's labour by a regular workman.

After what has been already said to prove the utter failure of the existing system of road-management, it is impossible to pass over that part of the Report which says, 'that many important reasons exist for leaving generally the direction of the affairs of the different turnpike trusts in the hands of the respective commissioners, whose experience, character, and interest, afford the best pledges of ability, attention, and economy.' Now, unfortunately for the inference of the Committee, the state of the roads, as described by such a number of the most competent witnesses, gives a flat contradiction to their proposition; and proves, beyond all question, the want of all ability, attention, and economy: And if the experience, character, and interest of the commissioners, have not, up to this time, produced good roads, they surely are but bad pledges of better management for the future. That a Committee of the House of Commons, however, should speak tenderly, and even favourably, of turnpike commissioners, is not to be wondered at.—The county members, of whom no doubt the Committee was principally composed, are always commissioners themselves; and receive a great deal of county support from that class of landed proprietors, who are also, as a matter of course, road-commissioners. These circumstances diminish considerably the authority of this part of the Report; and therefore, it ought not to operate as any discouragement to any attempt to take the direction of the roads out of the hands of the local commissioners; for unless this is done either at once, by appointing one set of commissioners for the whole of the turnpike roads, or by a commission for each county, the same radical vices which have hitherto prevailed, will be found to exist in all turnpike meetings; the tolls and the debts will go on increasing—horses be tormented and killed in the same prodigal way—and the roads remain in their present defective state; at once a disgrace to the nation, and a serious inconvenience to the public at large.

There is no more reason for doubting the practicability, of one set of commissioners managing to advantage all the turnpike roads of the country, than there is for doubting the practicability of one set being able to collect thirty millions of excise revenue. One eminent civil engineer for every 1000 miles, as a chief inspector, with sub-inspectors for each 100 miles of road, would relieve the commissioners from almost all trouble. The patronage of such an establishment might easily be so arranged, as to keep it free from the taint and control of the Treasury. We take the liberty to suggest this plan, because it is science and philosophical experience that is requisite for making good roads;—and not those other numerous qualifications, which are possessed so abundantly and administered so usefully for the benefit of the public, by that most meritorious class—the country gentlemen of England.

OBSERVATIONS

On sowing wheat among Indian corn—before and after the corn is gathered—the result compared—on white clover—horizontal ploughing—Cedar hedges—highland meadow oat, &c. &c., in a letter from COL JOHN TAYLOR, of Caroline County, Virginia, to G. W. J. FIFEYS, Esq. of North Carolina. Communicated for publication in the American Farmer.

Virginia, Caroline, Port Royal, March 2d, 1817.

DEAR SIR—I have repeatedly tried the difference between sowing wheat among Indian corn before it is gathered, and sowing it, after taking off the stalks, without being able to discern any. Forward corn, especially in your climate, might be cut and removed in time to sow wheat, but this cannot be done to any advantage in large crops. Because the labour cannot be performed in time by the hands on the farm, and in leaving the corn out to dry after being taken off, much loss is sustained. In your climate, I suppose the season for sowing wheat extends from the 20th of September to the last of October. Even here it is done in that period. By this time, the fodder being gathered, the corn sustains but little injury, and the wheat may be equally distributed. All depends upon ploughing it in properly. To make the earth meet in the line of the corn—to plough deep and cover the wheat shallow—and to leave very deep and wide water furrows, are the objects to be attained. The hoes following the ploughs only for the purposes of chopping the few spots in the line of the corn remaining uncovered, and hanging to the ears that may be broken off. In sowing wheat, I mix up gypsum or wood ashes bushel to bushel with the seed, and find it useful to check insects—to preserve the seed from theft—and in some degree to improve the crop.

The white clover, having horizontal roots, and being a dwarf species, seems to me to be less calculated than the red for improving land. Nor can it I think, be brought into general use, or made to flourish under the inclosing system, because it requires a close soil, and that system will render even stiff land too open and friable for it. Hence, I have seen it extirpated from soils by changing their texture with inclosing, where it existed previously in some degree. It is however decidedly the best grass I ever saw to be combined with grazing. Treading the ground seems necessary for its existence. And when red clover is severely grazed, it never fails in stiff land, to be eaten out by white. Perhaps in land so strong as to produce the luxuriant growth you mention, the white clover ought to be encouraged. That species of manure which will have the least effect in loosening the texture of the soil, must be the best. This is ashes. But any, combined with grazing to prevent the earth from becoming too friable for it, will highly improve it. This closeness of the soil, with the nature of its roots, causes deep ploughing to be more difficult in white than in red clover sods. Yet in lands so peculiarly adapted to white clover, it is

probable that it may be preferable to any other grass; and that by partial and judicious grazing, united with manuring to the utmost extent, it may be made to afford copious supplies of vegetable matter to the earth. From my experiments I have not discovered that it derives much benefit from the gypsum, but as these have been attended by inclosing, which soon extirpated the white clover, I do not consider them as conclusive. Had my soil been as congenial with it as your's, it would have excited a greater degree of attention to the point.

One of my sons, having a very hilly plantation, has gone into the horizontal ploughing with considerable success, in ridges of only 5½ feet width. The steepness of his hill sides required them to be thus narrow. Wherever the declivity is moderate, they ought to be made wider. The success depends on the exactness of the level to suspend, and the depth of the ploughing to absorb the water. It has not been complete, but yet so considerable as to have doubled the value of his land in seven years, in union with inclosing and manuring. Inclosing is indispensably necessary to make it beneficial, as by that, the earth is brought into a proper state for absorbing more water, and the suspension of the progress of this water by its vegetable cover, allows more time for the operation of absorption. In heavy rains, however, when the ground is in tith, instances occasionally occur of breaches across the horizontal beds. The remedy is to fill them immediately with brush having the leaves on, well packed. These however have been inconsiderable, and easily thus cured. The result is, that a large plantation, as hilly as any I know, from being excessively galled and gullied, is relieved probably of nineteen parts in twenty, of these calamities. Its soil was particularly liable to be washed away.

No apology for your letters is necessary. It is a social duty to do good when we can, and if such should be the case with any effort of mine, the effect is a sufficient reward. To evince the sincerity of this opinion, I will give you the trouble of reading a more particular account of the cedar live fence, than is in Arator, because its great importance to agriculture is now visible on my farm, and I really think it almost a panacea for its maladies.

The cedars should be transplanted in the three winter months and in March. They should be taken up in a square sod, of the size of a spade, and deposited in a square hole to be made by a similar spade, with out breaking the sod in which the young cedar stands, so as to fit as nearly as possible. Any little crevices made by the sods not filling the hole exactly, are to be well closed with part of the earth coming out of this hole, and the rest of this earth is to be crumbled close around the young cedar. The sod with the young cedar is to be taken up as deeply as possible, in doing which the spade ought to be driven perpendicularly into the ground, on three sides of the young cedar, but aslant on the fourth, so as to cut the tap root of the young cedar, lest in raising the sod, this tap root should hold the cedar, and so loosen its roots. The smaller the cedars are, the better. They are to be planted in two rows, one on each side of the bank of a ditch, two feet apart, so that the summit of this bank shall be one foot higher than its sides, where the cedars stand. This will aid the closeness of the hedge at bottom. The cedars are also to be two feet apart in the rows, but instead of standing opposite to each other across the fence, those in one row, are to be planted opposite to the centre of the vacancies in the other, in the following form. The dots are the cedars and the line the summit of the bank of the ditch. At one year old they should be topped with garden shears to one foot high, and the side branches clipped to within six inches of the stem. This is to be done yearly or half yearly, except that at each dressing the cedars are to be left four inches higher and wider, until they acquire the height and width, at which they are to be kept by yearly dressings. As some branches become too large for garden shears, the person dressing the hedge, has a knife made of a piece of an old scythe blade, with a wooden handle, to cut off these. An annual dressing is indispensable for the thickening of the hedge. The richer the

ground the sooner the hedge will arrive at perfection. In Europe, they always manure it highly before planting. The cedars must be hoed twice a year, until they gain the size at which they are to remain. This is done by thinly drawing down the earth, and returning it alternately. By gradually returning more than is drawn down, furnished in part by the scrapings of the ditch, they are in some degree manured. Green pine, or cedar brush, laid on the sides of the bank, and covered with earth, after remaining a year is a cheap and good manure to them. Apple trees of the wilding or Hughes' crab species, planted two feet from the inner line of cedars, so that the hedge when full grown will nearly touch them, thrive well, and promise to become the least expensive mode of raising orchards. This process has the appearance of being troublesome by being particularly described, but experience has taught me, that live fences consume much less labour (and they consume no wood) than dead. I was obliged to repeat much of Arator, to render a very few new ideas, comprehensible.

For ten years past I have been trying a grass called here the "highland meadow oat—the Egyptian oat—the Peruvian grass". It is probably known among you by some of these names. At first I was discouraged by its growing in tussocks. But by sowing it thick, I find it to be the best highland grass I know; and I would sooner relinquish the red clover than part with it. Its qualities are—to produce heavy crops of fine hay in strong land—to bear drought better than any other grass—to live in land where red clover perishes, and to afford to it cover, and vegetable matter—to bear grazing well—to adhere long to the land—and to yield both good seed and good hay at the same cutting. The greatest defect I have perceived, is a propensity to shed its seed whilst yet green. This is only to be watched and remedied by cutting it at the proper juncture for the sake of securing seed. It is an excellent grass to be sown with red clover, by rendering the hay more easy to be cured. It may be sown with oats or wheat, or alone. Its power of resisting drought, and preference of high land, and capacity of existing in sandy soils, seems to adapt it for North Carolina and Virginia. I have given its character to induce your society to give it a trial. Lest you may not have it, a few seeds are inclosed, planted this spring and properly nursed, they will be a stock, equal to that which has furnished me with many bushels. This grass for high, and the red top for low land, are likely I think with us to prove more valuable than the red clover and timothy.

Perhaps the book stores may afford some new agricultural books, but being old, retired, and not conversant with them, no knowledge of any such have reached me. I remain, sir,

Your most ob'dt servant,

JOHN TAYLOR.

HUSBANDMEN AND THE HONOUR PAID TO AGRICULTURE IN CHINA.

From Navarette, Le Comte, Du Halde, &c.

The Husbandmen in China, as to rank, are preferred to Merchants and Mechanics. They are endowed with large privileges, their profession being considered as the most necessary one in a State. Navarette observes, that the Chinese say, that the Emperor ought to take them under his particular care, and to allow them as large privileges as may be; because all the Empire subsists by their labour and industry. Nay, it could subsist without the strongest inclination and application of the country-people that way! China being so vastly populous, that if every inch of arable land was sowed, as in fact it generally is; yet the produce would be scarce sufficient to support the multitudes of inhabitants; and the Empire is too extensive to have its wants that way supplied from foreign parts, even if it kept up a correspondence with them. For these reasons it has always been one of the chiefest cares of the government to promote Agriculture, by honouring Husbandmen and their profession. With this view a festival is instituted in honour of agriculture; and the Emperor himself, once a year turns ploughman, in imitation, as it is said, of

the early monarchs, whose history seems to be calculated for the same end.

The common opinion, according to the Missioners, is, that Husbandry was first taught by *Shin-nong*, who is at this day revered as the inventor of so useful an art; which has still gained father credit from what is related in the Books of their ancient philosophers. The Emperor *Yau*, who began to reign four hundred and eighty years after the monarch, it seems, set aside his own children in favor of a young Husbandman, whom he chose for his successor. This choice of an Emperor out of the country, has inspired the Chinese with a great esteem for agriculture. *Yu*, who succeeded *Shun*, came to the throne after the same manner. It is said, he found out the way, by means of canals, to drain off the water into the sea, which at the beginning of the Empire overflowed several low countries, and afterwards made use of them to render the soil fruitful. It is added that he wrote several books concerning the manner of cultivating land, and watering it, which induced *Shun* to appoint him his successor, and has contributed much to raise the credit of agriculture, as they see it has been thought worthy the care and application of a great Prince.

Several other Emperors have expressed their zeal for this art. *Kang Yang*, third monarch of the *Chew* family, caused land-marks to be fixed, to prevent disputes among the Husbandmen. *King-Fing*, the twenty fourth of the same race, in whose reign *Confucius* was born, five hundred and thirty one years before Christ, renewed the laws that had been made for promoting agriculture. In a word, the Emperor *Yen-ti*, who reigned three hundred and fifty two years after, raised its esteem to a great pitch: for this Prince perceiving, that his country was ruined by the wars, to engage his subjects to cultivate the land, set them an example himself, by ploughing the fields belonging to his palace: which obliged all the ministers and gentlemen of his court to do the same.

It is thought, that this was the original of a great festival that is solemnized every year in all the great cities of China, when the sun enters the fifteenth degree of aquarius; which the Chinese look upon as the beginning of the spring. On this day the Governor comes out of his palace, carried in his chair, preceded by banners, lighted torches, and divers instruments; he is attended with several litters, painted, and adorned with a variety of silk tapestry; exhibiting various figures, and the portraits of illustrious persons who had practiced husbandry with histories relating to the same subject! He is crowned with flowers, and marches in this equipage towards the eastern gate of the city, as it were to meet the spring.

Among the figures, there is a cow of earthenware, so monstrously large that forty men can hardly carry it. Behind the cow, whose horns are gilt, is a young child with one foot naked and the other shod: him they call the *genius of labour and diligence*: who strikes the earthen-cow incessantly with a rod as though it were to make it advance. All the Husbandmen follow with their instruments; after whom proceed companies of Masquers and Comedians, acting plays. In this manner they march to the Governor's palace, where they strip the cow of her ornaments; and drawing out of her belly a prodigious number of small cows made of clay, and distribute them among the multitude, as well as the fragments of the cow, which they break into pieces. Afterwards the Governor makes a short discourse, recommending the care of husbandry as one of the things most conducive to the good of a state.

The attention of the Emperors and Mandarins to the cultivation of the land is so great, that when deputies arrive at court from the Vice-Roys, the Chinese monarch never forgets to demand in what condition the fields appeared to them; and the falling of a seasonable shower furnishes a proper occasion for visiting a Mandarin, to compliment him thereupon. Every year, in spring, which falls in February, the Emperor (according to the ancient custom) goes himself, in a solemn manner, to plough a few ridges of land, in order to animate the Husbandmen by his own example; and the Mandarins of every city perform the ceremony, which is as follows—

The tribunal of Mathematics having, pursuant to orders, fixed on the twenty fourth of the second moon, as the proper day for the ceremony of tillage, that of the Rites gave notice to the present Emperor *Yong-Ching*, by a memorial which set forth the following particulars to be observed by him, preparatory to this festival.—1st. That he should appoint twelve illustrious persons to attend and, plough after him, viz. three Princes, and nine Presidents of the Sovereign courts; or the assistants of the latter, in case they were too old, or infirm.—2nd. That as this ceremony does not solely consist in the Emperor's ploughing the earth, in order to stir up emulation by his own example; but also includes a sacrifice, which he, as Chief Pontiff offers to *Shang-ti*, to procure plenty from him in favor of the people: therefore by way of preparation, he ought to fast and observe continence the three preceding days; the Princes and Mandarins who accompany His Majesty, ought to prepare themselves in the same manner.—3rd. That on the eve of the ceremony, His Majesty is to send several Lords of the first quality to the Hall of his ancestors, to prostrate themselves before their Tablet and give them notice, as though they were yet living, that the next day he will offer the great sacrifice.

Besides these directions to the Emperor, the tribunal likewise prescribes the preparations to be made by the different tribunals; one is obliged to prepare the sacrifice; another to compose the formula; another to carry and set up the tents, under which His Majesty is to dine, in case he so orders it; a fourth is to assemble forty or fifty Husbandmen venerable for their age, who are to be present when the Emperor ploughs the ground, with forty of the younger sort to make ready the ploughs, yoke the oxen, and prepare the grain that is to be sown; consisting of five sorts, supposed to comprehend all the rest, as wheat, rice, beans and two kinds of millet.

On the twenty fourth day of the moon the Emperor went with his whole court, in his habit of ceremony, to the place appointed, to offer to *Shang-ti* the spring sacrifice; by which he is implored to increase and preserve the fruits of the earth. The place is a little hillock made of earth, a few furlongs south from the city; on the side of this elevation, (which ought to be fifty feet, four inches high) is the spot which is to be ploughed by the Imperial hands.

After the Emperor had offered sacrifices, he descended with the three Princes and nine Presidents, who were to plough with him. Several great Lords carried the valuable chests, which contained the grains that were to be sown. All the court attended with profound silence; then the Emperor took the plough and tilled the ground several times backwards and forwards: when he quitted it a Prince of the blood held it and ploughed; as did all the rest in their turns. After having ploughed in several places, the Emperor sowed the different grain; and the day following, the Husbandmen by profession (forty four of them old and forty two of them young) finished the remainder of the field that was left untilled. The ceremony concluded with the appointed reward, which the Emperor bestowed upon each of them; consisting of four pieces of dyed cotton to make cloths.

The Governor of *Pe-King* goes often to visit this field, which is cultivated with great care; and examines all the ridges thoroughly, to see if he can meet with any uncommon ears, such as they reckon good omens; on which occasion, he gives notice, that he found a stalk, for instance, that bore thirteen ears. In the autumn the same Governor gets in the grain in yellow sacks; which are stowed in a granary built for that purpose, called the *Imperial Magazine*. This grain is kept for the most solemn ceremonies; for when the Emperor sacrifices to *Tyen*, or *Shang-ti*, he offers it as the fruit of his own hands; and on certain days in the year, he presents it to his ancestors, as if they were still living.

Among several good regulations made by the same Emperor, he has shewn an uncommon regard for the Husbandmen. To encourage them in their labour, he has ordered the Governors of all the cities to send him notice every year, of the person of this profession, in their respective districts, who is most remarkable

for his application to agriculture; for unblemished reputation; for preserving union in his own family, and peace with his neighbours; for his frugality and aversion to extravagance. Upon the report of the Governor, the Emperor will advance this wise and diligent Husbandman to the degree of a Mandarin of the eighth order, and send him patents of an ordinary Mandarin; which distinction will entitle him to wear the habit of a Mandarin, to visit the Governor of the city, to sit in his presence, and drink tea with him. He will be respected all the rest of his days.—After his death he will have funeral obsequies suitable to his degree; and his title of honour shall be written in the Hall of his ancestors. What emulation must such a reward excite among the Husbandmen!

Accordingly we find that they are continually busied about their lands; if they have any time to spare, they go immediately to the mountains to cut wood; to the garden to look to their herbs, or to cut canes, &c. so that they are never idle. The land in China never lies fallow. Generally the same ground produces three crops in a year; first rice; and before it is reaped they sow fitches; and when they are in, wheat, beans or some other grain: thus it goes continually round. They very seldom employ their land for unprofitable uses, such as flower gardens, or fine walks; believing useful things more for the public good, and their own.

The attention of Husbandmen is chiefly employed in the cultivation of rice. They manure their land extremely well; gathering for that purpose, with extraordinary care, all sorts of ordure, both of men and animals, or truck for it wood, herbs, or linseed oil.—This kind of manure, which elsewhere would burn up the plants, is very proper for the lands of China; where they have an art of tempering it with water before they use it. They gather the dung in pails, which they commonly carry covered on their shoulders; and this contributes very much to the cleanness of their cities, whose filth is thus taken away every day.

In the province of *Che-Kyang*, and other places, where they sow rice, they use balls of hogs, or even human hair; which, according to them, gives strength to the land; and makes that grain grow better. For this reason, Barbers save the hair which they cut off the heads, & sell for about a halfpenny a pound to such people who carry it away in bags; and you may often see barks loaded with it. When the plant begins to ear, if the land be watered with spring-water, they mix quick-lime with it; saying, that it kills worms and insects, destroys weeds, and gives a warmth to the ground, which contributes much to its fertility. By this means the rice fields are so clean, that Navarette, sometimes, walked through them, looking for some small herb; and could never find any; so that he concludes, the rice which is surprisingly tall and fine, draws all the nourishment from the ground.

The Husbandmen sow their grain at first, without any order; but when it has shot about a foot, or a foot and an half high they pluck it up by the roots; and making it into a sort of small sheaves, plant it by a line, and checkerwise; to the end, that ears, resting upon each other may stand more firmly, and resist the winds. But, before the rice is transplanted, they level the land, and make it very smooth, after the following manner; having ploughed the ground three or four times successively, always to the ancles in water; they break the clods with the head of their mattocks; then, by the help of a wooden machine (on which a man stands upright, and guides the buffalo that draws it) they smooth the earth, that the water may be every where of an equal height; inasmuch that the plains seem more like vast gardens than open fields.

The mountains in China are all cultivated; but one sees neither hedges nor ditches nor scarce any tree; so fearful they are of losing an inch of ground. It is very agreeable to behold, in some places, plains three or four leagues in length, surrounded with hills and mountains, cut from bottom to top, into terraces three or four feet high, and rising one above another, sometimes to the number of twenty or thirty. These mountains are not generally rocky, as those in Europe, the soil being light and porous, and so easy to be cut

in several provinces, that one may dig three or four hundred feet without meeting with the rock. When the mountains are rocky the Chinese loosen the stones, and make little walls of them to support the terraces; they then level the good soil and sow it with grain.

They are still more industrious. Though in some provinces, there are barren and uncultivated mountains, yet the valleys and fields which separate them in a vast number of places, are very fruitful and well cultivated. The Husbandman first levels all the unequal places that are capable of culture. He then divides that part of the land, which is on the same level, into plots; and that along the edges of the valleys, which is unequal, into stories, in form of an amphitheatre: and as the rice will not thrive without water, they make reservoirs, at proper distances, and different heights, to catch the rain and the water which descends from the mountains, in order to distribute it equally among their rice-plots; either by letting it run down from the reservoir to the plots below, or causing it to ascend from the lower reservoir to the highest stories.

For this purpose they make use of certain Hydraulic Engines, which are very simple, both as to their make and the manner of playing them. It is composed of a chain made of wood resembling a chaplet or pair of beads, strung as it were with a great number of flat boards, six or seven inches square, and placed parallel at equal distances. This chain passes through a square tube or gutter: at the lower end whereof is a smooth cylinder or barrel, whose axis is fixed in the two sides: and to the upper end is fastened a sort of drum, set round with little boards to answer those of the chain, which passes round both it and the cylinder: so that when the drum is turned, the chain turns also; and, consequently, the lower end of the gutter or tube being put into the water, and the drum-end set to the height where the water is to be conveyed, the boards filling exactly the cavity of the tube, must carry up a continual stream so long as the machine is in motion; which is performed in three ways:—1st. With the hand by means of one or two handles applied to the ends of the axis of the drum.—2nd. With the feet, by means of certain large wooden pegs, about half a foot long, set round the axle-tree of the drum for that purpose.—These pegs have great longish heads, rounded on the outside, for applying the soles of the naked feet; so that one or more men, may with the greatest ease put the engine in motion, either standing or sitting; their hands being employed all the while, the one holding an umbrella, and the other a fan.—3rd. By the assistance of a buffalo, or some other animal made fast to a great wheel, about four yards in diameter, placed horizontally. Round its circumference are fixed a great number of pegs or teeth; which tallying exactly with those in the axle-tree of the drum, turn the machine with a great deal of ease.

When a canal is to be cleansed, which often happens,—it is divided, at convenient distances, by dikes; and every neighbouring village, being allotted its share, the Peasants immediately appear with their Chain-Engines, whereby the water is conveyed from one to the other: this labour, though painful is soon ended, by means of the multitudes of hands. In some parts, as the province of *Po-Kyen*, the mountains, though not very high, are contiguous, and with scarce any valleys between; yet they are all cultivated by the art which the Husbandmen have to convey the water from one to the other through pipes made of Bambu.

To this surprising industry of the Husbandmen, is owing that great plenty of grain and herbs, that reigns in China above all other regions. Notwithstanding which, the land hardly suffices to support its inhabitants; and one may venture to say, that to live comfortably they have need of a country as large again.

After all, the Husbandmen are generally poor people, and have but a small parcel of land each. The usual rule is for the Landlord to have one half the crop, and pay all taxes: the Husbandman has the other half for his pains.

TO THE EDITOR OF THE AMERICAN FARMER.

SIR,—You commence your American Farmer of August 18th, with a report by Mr. Webb Hall, who imagines he proves that agriculture is sacrificed to manufactures; and who endeavours to prove, that the higher the price of grain the greater the prosperity of the nation.—There was long a contest whether the mind operated upon the body, or the body on the mind, and at length it is decided, that the body influences the brain, and the brain the body. The price of grain depends upon the number of mouths, and the capability to pay for food; without manufactures, ship-builders, sailors, &c. the cultivator could not be paid for his grain. Wheat cannot be imported into Great Britain until the price exceeds 80 shillings per quarter, or ten shillings per bushel—and yet the farmers complain of low prices, high rents, tythes, taxes and poor rates ruin the farmer; and as the manufactures decline in consequence of rivalry in France, &c. prices of grain must fall, as the quid pro quo cannot be given. In this country grain is low, because we want consumers—if there were more manufactures, we should have more to receive in exchange for food; no man can produce without benefiting society, therefore *all industry* should be encouraged.—The general argument in vogue is, if plenty of food be produced it will be cheap, and labour will be cheap, and capital will go into manufactures; capital is here vaguely applied.—Suppose there be no money in a nation—how is land to be converted into manufactures? Land has been always first cultivated, because it is a capital given by our Creator. Agriculturists at first cultivated the soil only for their own subsistence, a superfluity was given, which were useless if manufactures had not been introduced—a horse shoe, a plough, a barn, a road, cloth, candles, &c. are manufactures. If a nation has capitals in old established factories, vested in buildings, machinery, &c. the possessors can afford to receive a trifling interest on their fixed capitals, and if labor be cheap by surplus population, they can afford to glut foreign markets and to check rising manufactures. In this case as a farmer I say, that it is the interest of agriculturists to have manufactures protected by all legal means. The situation of farmers in Great Britain bears no similitude to our situation—as the price of grain rises, they have a monopoly fund there, not more land to cultivate; but when the surplus population cannot obtain employment, they must fall on the Parish and the farmer must support them.

The Edinburgh Reviewers, attribute the great population in England to manufactures, which by giving employment to women and children encourage marriages. This consequence cannot be objected to here.

Mr. Webb's calculations of the superiority of the amount of money received for agriculture, does not convince me that agriculture should be partially encouraged; we farmers find ourselves actually distressed by low prices, which will not repay the expense of cultivation. We are deeply interested in the promotion of manufactures, the subject is most intimately connected with that of agriculture.—I hope you will not exclude the essays of farmers who endeavor to demonstrate that without domestic manufactures they will be ruined.—Pardon me for suggesting that you seem to me to be biassed against manufactures, or rather to view them as irrelevant; you certainly are not to admit details about machinery; but the man who endeavours from his own conviction to demonstrate, that without manufactures in this country farmers must continue in distress, deserves a corner in your very useful and widely circulating paper.

* Note by the Editor.—If we be not mistaken in the person of our correspondent, he is one of the most honest, liberal and zealous men alive.—We are sorry therefore, even to suspect that he could entertain any doubt of our impartiality in the discussion and treatment of a great question of national policy.—Our object we repeat, is that the Farmer shall attain by a decent and enlightened discussion, the best understanding of his true interests—a portion of our Journal is at the service of those whose studies and attainments qualify and dispose them to conduct this dis-

Your Editorial remarks on Mr. Hall's report, induced me thus to address you, the internal policy of Great Britain in respect to agriculture and manufactures, cannot have conducted that industrious and enterprising nation to famine and despair; for both are flourishing; the taxes, state creditors, large armies, and navies, and poor rates, are too heavy to be borne: a wise protection of all internal industry has hitherto enabled the nation to support the superincumbent weight heaped upon it by wars of ambition—all the world has been astonished. Other nations are pursuing the internal policy of Great Britain, and her monopoly of manufactures is broken. Were she to admit our wheat, her farmers would be ruined; if the monopoly of the grain market be continued to agriculturists, her manufactures must decline; and if her manufactures decline, her farmers cannot be paid as usual for food. These United States have too many producers and too few consumers—could a portion of cultivators become manufacturers, or if we could have retained manufacturers from abroad, who have been driven back, and if we had encouraged the emigration of more—farmers would not be now penniless.

M.

cussion. All we ask, is that the combatants shall observe temperance and moderation—both as to the quantity and quality of what they write. There is, we conceive, no necessity to apologise to the readers of this Journal, who are generally speaking, practical farmers, for the admission of essays—the object of which is to prove the policy of encouraging domestic manufactures by higher duties on imported articles—for, on which side soever it may be found, it is the farmers interest to arrive at the truth; and truth in a question like this, where so many men are of so many minds, is only to be elicited by a comparison of the reasoning and opinions of enlightened men, who take different views of the subject—this is not the age for men to take opinions by prescription, and swallow dogmas in religion or politics, as we do pills about which we know nothing, except what the Doctor tells us.

We take this occasion however to observe, upon the course pursued by other Editors generally, and especially in the seaport towns.—When the very voluminous essays prepared in a systematic form by the friends of domestic manufactures were put forth—there seemed to be no difficulty in having them inserted in almost every paper in the union. They were diffused throughout the country.—You could not unfold a newspaper for many months that you did not see one or more of the links in the long chain of argument which had been wrought by the concerted labours of the friends of protecting duties.—Now to this we have no objection to offer—on the contrary, as they were serious appeals to the understanding of the nation on an important question, we should say the wider the diffusion the better—"give us but light," say the people and we will judge for ourselves; but mark!! Why have not the opposite views of the question, presented in the memorials and reports by the Agricultural and Commercial classes, been disseminated with equal freedom through the same channels? Many daily Journals in our seaport towns, wherein sufficient room was made to give place to the long series of long essays in favor of manufactures, cannot find room now for the Richmond and other memorials against higher protecting duties. They would come in to the exclusion of too much precious news about the Queen of England, the King of Spain, the Emperor of Russia, and other virtuous, pacific and pious potentates, friends of peace, "liberty and America."

The one sided course here mentioned, which has been pursued by the newspapers generally speaking—might seem to justify us in reserving this Journal as a weapon of defence for the use of the advocates of the plough—but this retaliatory course would not comport either with our own views, nor with the wishes of those for whose benefit this Journal was established.—Let the investigation be free and liberal, not interfering with private feelings nor excluding by their number or length practical essays, and we and our subscribers will be content.

Having published the remarks of MELIBŒUS, in the following extract from the private letter of another correspondent, we present another view of the picture.

"Your paper is important to agriculture, as a faithful source, of agricultural art and science; but I deem it *vastly more important*, as a medium for the communication of *correct information*, to the farming interest relative to their *political rights and interests*. They require information on those points; and it is also necessary for them to know, the *sovereign strength* of their *elective influence*; and to be enabled to act in concert, as those *minor classes* do, that have so long oppressed, this great, prominent, and important interest of this country.—I am confident, that millions have already been sacrificed to this nation, by the unjust oppressions of agriculture, and instead of deriving revenue from import duties, which the farmers have the *greater part* to pay, with an *additional* per cent, to the *shipper*, wholesale and retail merchant—I would greatly prefer making our seaports the *emporiums* of the world, by taking off *all import duties*, and thus inviting the trade of the whole world to sell their merchandise, and compete for our great agricultural products. We as an agricultural people should buy at the lowest prices, the articles we wanted, and sell our produce at the highest price; for foreign ships, would take back a return cargo, if they only realised 1 per cent. rather than return empty; and thus agriculture would flourish beyond calculation, by recalling the labourers from less important avocations, and possessing the means of permanent and valuable improvements. I would prefer a direct tax for the support of the national government (in lieu of import duties) imposed on *real and personal estate* and on the *capital* of other avocations, as far as ascertainable. The *pre-eminence* of agriculture, would then be *evident* to our *government*, and the *nation* and the *world*; and agriculturists would then receive proper attention from government—and the *clamour* of other *classes* be *silent* for ages. But alas! This is too much to hope for."

FOR THE AMERICAN FARMER.

Mr. Skinner,

What we call *smut* in wheat is increasing in a very alarming degree, and it is the duty of every one to endeavor to check its progress.

I find in Duhamel's Elements of Agriculture, Vol. 1. page 274, a very long chapter on the distempers of corn, in which he has closely investigated the subject; he calls the disease we complain of *Carbon* or *burnt grain*, and particularly distinguishes it from *smut*, which I sometimes have heard called *blast*; however the name is of no consequence.

Mr. Duhamel and Mr. Tillet made a variety of experiments on the subject, and although they could not ascertain the cause, they were satisfied that the disease was communicated by the dust of the distempered grain, and by clearing their seed wheat of the black grains, as well as possible, and washing it in such steepers as they recommended, their crops were not very materially injured.—This is a fatal disease, it is spreading far and wide, and must if possible be checked. The remedy is perhaps within reach of every one, and if you can find room in the Farmer, for Duhamel's chapter on the distempers of grain, you will I think render service, to those who wish information Duhamel's Elements, is a book, perhaps not to be found in every library but the chapter is also in Mills' Husbandry Vol. 2. page 381, as taken from Duhamel. I would transcribe the chapter if it was not so long, and not doubting that you have the book or can readily procure it in Baltimore. I will ask

you to look at it soon, and if it meets your approbation notice it in the Farmer.

Respecting the benefit of washing grain for seed, I can speak with some confidence, and will relate a circumstance, proper to connect with the subject of this address.

Some years ago, I had procured some seed oats of a very superior quality, and continued to sow them for several years, the only objection to them, was, that they had too many blasted heads, (Mr. Duhamel would say smutty heads); this disease continued to increase, until sometimes the dust was offensive to those who secured the crop. Our crop in particular was so much infected, that the cradlers were nearly as black as colliers. I cut that crop when rather too green to tie up and shock, and let them lie without binding, to cure; before they were sufficiently dry to bind, a heavy rain fell and I was obliged to turn them, and the rain so invariably succeeded the turning, that I believe I turned them four or five times before they were sufficiently cured to stack. The consequence was that I had clean grain, but little of it,—I seeded this same oats the next season, and although I sought for, I could not find any blasted heads, I continued to sow the same kind several years afterwards without being injured by the blast. A

[We are very solicitous that this subject, the *smut* in wheat, should be thoroughly investigated, and once more invite the assistance and co-operation of our correspondents and friends. In subsequent numbers we shall offer the chapters referred to in Duhamel, with extracts from such other authorities at hand as may appear to be relevant and useful.—In the mean time as not a moment is to be lost, we take this opportunity of acquainting our subscribers that in the progress of a tour lately made by the Editor through the upper counties of Virginia, he was assured by several gentlemen farmers of great intelligence and experience that they fully confided, after trial, in the efficacy of *lie* used as a steep for seed wheat, to guard the product against the smut.]

The Editor's absence prevented an earlier attention to the following:

CAMDEN, S. C. 4th Sept. 1820.

Mr. Skinner,

You must permit me to correct an error or two in your publication of my communication of the 4th July. As to the price of Bricklaying in the Southern States, you have converted my *five* into a *two*. It is *five* (sometimes more) dollars per thousand. The words "so as to" (line 2 p. 176) should not at all appear. I will now thank you for your attention and hope to make my MS. more legible, if I should again intrude myself on your notice. I would disclaim the Idea of "laying violent hands on Rivers and Canals." Clear and form them, if you can; but, as we know *there is now a scarcity of water* for nearly two-thirds of the year, open your roads in the first instance, if it be only to accommodate those who are to work on your canals and rivers. At present, the access to the *Seats of Improvements* is so difficult as to give the public no fair chance of the competition necessary to the due and cheap completion of its works. At the time the first work was done in Columbia S. C. (in 1818) corn was at 150 to 200 cents per bushel, and bacon to 20 to 25 cents per lb. while at the same time, in Mecklenburgh, N. C. they were selling at half the price. The obvious remedy

would have been to have commenced a road from the source of supply so that the prices in the respective places should have equalized, and thousands of dollars would have been saved. "*One fourth*," observes a late Salisbury N. C. paper "and, frequently *one-third*, of the labour of the Rowan Farmer, is consumed in getting his produce to market." You ask "how a drain can be useful in an arid soil and a river be useful for that purpose?" You have overlooked my P. S.; and forgotten that I spoke of the *aridity* of the Southern States compared with the humidity of Great Britain. I still, at least in the greater number of instances do but view rivers as great natural drains.

However, this as well as other subjects tending to the public welfare is afloat—the ball has received its impulse, and in the main, will go on well, although many blunders will be committed. In the correction of these, your paper, still I believe (at least it is in this quarter) increasing in circulation, will hold an honorable station. Permit me to refer you & your readers, to Rees' Encyclopedia, Phil. Ed. article *Railway*, Vol. 30. part 60—plate 4. (for models of road) *Canals*.

You speak of rivers and canals as "the best and cheapest within uses of all possible highways." I will not go into the subject, but refer you to the actual state of land and water carriage in Great Britain. I believe I could make an equally good use of France, were I to add her experience in support of my opinion. Oliver Evans was *with me*. A host in himself in either Theory or Practice—Precept or example. I am Sir,

Yours, &c.

A CAMDONIAN.

P. S. Amidst the abundance of Patents taken out last winter there was one "for a Columbian Level, or improved Railway, by a Mr. Charles Williams of Richmond. Is it gone like thousands of others, to the "Tomb of all the Capulets?"—He would now have a fine opportunity of testing his experiment, in a road now making (from this Town to its boat landing on the water) on nearly level ground. Its length does not exceed 2 miles.

From the Long-Island Star.

THE LOCUST TREE.

I have seen a piece in thy paper on the subject of raising Locust Trees, which has been copied in other papers. I have had some experience in this article—and if my observations are thought to be worth attention, thou art at liberty to give them an insertion in thy paper; and perhaps it may prevent disappointment with those that may be influenced by the other publication on the subject.

I planted the seed of Locust some years since, and they flourished for 5 or 6 years, after which an insect attacked them and destroyed thousands of the trees. I then cut them off by the ground, and in one year they grew again from 6 to 7 and 8 feet; but owing to the insects they are now turning yellow.

I made an experiment on the natural locust of the country, that does not bear seed. I set out about an acre taken from a grove of this kind; and although adjoining a piece of the seed locust, they are fresh and green, and thrive remarkably well.

It is possible that the insects may eventually

leave the seed locust—but I think the common locust more certain, for I have observed large trees of the seed kind to be very rough and sickly.

There is no difficulty in propagating these trees. By setting them out like an orchard, and keeping the ground under constant tillage, they will spread rapidly, in case the cattle and sheep are kept out for a few years; and as soon as the trees are out of reach of the stock, the land will afford abundance of sweet pasture.

Any person having a small piece of locust, or even a few trees, by cutting them off and fencing it, may plant the ground with potatoes, which by tilling for one year and keeping the ground mellow, will furnish a constant yearly supply of young trees, and will increase on his hands in rapid progression.

A Long-Island Farmer.

Clover and Orchard Grass Seed— quantity per acre, and common price per bushel.

RESPECTED FRIEND.—Over the signature of a Farmer, communicating to thee, from Frederickburg, under date of the 20th of July, I observe enquiries made concerning clover and orchard grass seed, in thy paper of the 1st instant—to which I give in reply, as the result of my experience—First, there should be six quarts of clover seed, sown to the acre for mowing; for pasture 4 quarts is sufficient.—the most approved time for sowing in this state, is from the middle of the 3rd month (March) till the 20th of 4th month (April) though some few farmers, sow with their wheat in the fall season—at the same periods orchard grass is usually sown, and it requires 3 pecks to 1 bushel per acre, which is found to be sufficient to yield a luxuriant pasture, coming earlier and remaining later than any other we have amongst us.

My observation and some experience, has proven it most advantageous, to mix those seeds for pasture lands, reducing the clover to 4 quarts, and the orchard grass to half a bushel per acre: the clover will come forward first, and by the second year the orchard grass will take the lead.

Those seeds are kept in their season by the subscriber, and heretofore I have sold the orchard grass at 5 dollars at retail, 4 dollars by large quantities, and clover at 9 to 10; but the prices of those seeds, are always governed by their being in abundance, or scarce, and will of course vary accordingly.

Respectfully thy friend,

ELY BALDERSTON.

No. 61 Smiths' Wharf.

FOR THE AMERICAN FARMER.

PRODUCE OF LAND IN FLAX.

Cecil County, near Elkton, Sept. 1820.

MR. SKINNER,

SIR,—On the 12th of March last, I sowed twenty eight quarts of Flax-Seed over two acres of land, without any manure of any kind; the flax has been pulled and rotted, has an excellent coat, from a fair calculation there will be 450 to 500 pounds—also from the same, thirty two bushels of clean seed.

Should you think the above account worthy of being published in your paper, you have the liberty of so doing.

A YOUNG FARMER.

To make Portable Balls for removing spots from Clothes in general.

Take fullers earth, perfectly dried, so that it crumbles into a powder, moisten it with the clear juice of lemons; and add a small quantity of pure pearl ashes; then work or knead the whole carefully together, till it acquires the consistence of a thick elastic paste, form it into convenient small balls, and expose them to the heat of the sun, in which they ought to be completely dried. In this state they are fit for use in the manner following: first moisten the spot on your clothes with water, then rub it with the ball just described and suffer it again to dry in the sun; after having washed the spot with pure water, it will entirely disappear.

VARNISH FOR FURNITURE.

To one part of virgin's white wax, add eight parts of oil of petroleum, lay a slight coat of this mixture on the wood, with a badgers brush while a little warmed. The oil will then evaporate and leave a thin coat of wax, which should afterwards be polished with a coarse woolen cloth.

TO DESTROY ANTS.

Ants that frequent houses or gardens, may be destroyed by taking flower of brimstone half a pound, and pot ash four ounces; set them in an iron or earthen pan over the fire till dissolved and united: afterwards beat them to a powder, and infuse a little of this powder in water, and wherever you sprinkle it, the ants will die, or fly the place.

THE FARMER.

BALTIMORE, FRIDAY, SEPTEMBER 29, 1820.

In regard to the essay signed "A Maryland Farmer"—we find ourselves in a very awkward dilemma. It was put amongst other papers, into the hands of the Editor, on his return from a tour through the upper counties of Virginia, undertaken for the restoration of his health. Finding it long, and wishing to peruse it attentively, he took it home to his dwelling, where by some mischance it has been mislaid, and this awkward apology, is the only one that can in truth be made to the author. "MELLI-NUS" however, in this number upholds the same side of the question, and "A Maryland Farmer" may be assured, that if by repeated and diligent searches his essay in reply to "A Virginia Farmer" can be found, it shall be published. Perhaps the author has the rough copy—as the Editor has been accused of being against the advocates of higher protecting duties, he feels the more embarrassed and mortified at having mislaid an argument prepared by such a respectable and able supporter of that side of the question. As an Editor, and for truth's sake, he wishes to give fair play to both sides.

We are indebted to an highly valued correspondent for the communication going to shew the honours paid to the plough in China—and most assuredly if any calling deserves more than another the homage and gratitude of society, it is that which provides the means of subsistence itself, and leaving leisure for the improvement of the mind and the refinement of the moral faculties, thus elevates the social above the barbarities and abjectness of savage life—the plough may be said to lay the foundation of the social edifice, and without its fruits, whence should we derive the commodities of commerce, or the refinements and pleasures corporeal and mental, that follow in her

train? In our next, with a view to shew the estimation in which agriculture is held in modern times in a nation with whose policy we are more familiar, we shall commence the publication of the account of the last annual Agricultural festival, at Mr. Coke's in England.

We are assured that the Gapes in Chickens, may be cured by dipping a feather in oil of Wormseed and thrusting it in the throat of the Chicken afflicted.

Our agricultural friends are again reminded, that the next meeting of the Agricultural Society of Maryland, will take place at the Pavilion Gardens in this City, on Wednesday and Thursday the 11th and 12th days of next month—as more particularly stated in the last number of the Farmer.—An opportunity will offer of purchasing some of Mr. Barney's celebrated Bakewell Sheep—and it is expected that all farmers, who can make it convenient, will bring for exhibition any Live Stock, or other productions of their farms, which may be in any degree remarkable for their good qualities. It will be a good opportunity for the inventors of Agricultural Machinery to exhibit the fruits of their genius and labours. The different Editors of papers in Maryland would do a service by calling public attention to this meeting.—Why may we not hope in a short time to have Agricultural Fairs here, equally numerous and productive of public benefit, as those held annually at Boston and elsewhere—where thousands assemble and where the best of every thing in the agricultural line may be seen and bought.

General Post-Office.—The number of Post-Offices in the United States is four thousand eight hundred and thirty, and the length of post-roads is 71,522 miles.—The amount of postage for the year 1819 was \$1,204,680; the cost of transportation of the mail \$717,843; and the compensation of Postmasters \$375,964.

ERRATA.

In Number 18, of the 28th July last, in the letter of A. Fenwick, on the subject of Botanical Geography, in the second paragraph, for rain of winter, read reign of winter.

Present Prices of Country Produce in this Market.

Actual prices of grain the present week—Best WHITE WHEAT, 90 to 95 cts—Do. RED, 85 to 86 cts—Do. YELLOW CORN, 45 cts—Do. WHITE DO. 42 to 43—HAY, per ton \$18—STRAW, do. \$7—OATS, 25 to 28 cts—RYE, 40 cts—FLOUR, from the wagons \$4 75—WHISKY, from do. 34 to 35 cts—BUTTER, per lb 31 cts—EGGS, per doz. 18½ cts—VEAL, per lb. 6 to 8 cts. LAMB, per quarter 3½ to 6½ cts—Cod Fish, per quintal, \$3 to \$3 50—N. England BEANS, per bushel, retail, \$1—Do. BLACK-EYE PEAS, per do. \$1—BEER, prime pieces 8 to 10 cts—CHICKENS, per doz. \$2 50 to \$3—POTATOES, 37½ to 50 cts—TAR, \$2—TURPENTINE, soft, \$2 25—SPIRITS, do. 35 cts—PITCH, \$2 50—ROBIN, \$2—LARD, 11 to 12 cts—BACON, hog round, 8 cts—SHAD, No. 1, trimmed, new, \$7—White BEANS, \$1 25—PEAS, Black-eye, 65 cts—SHINGLES, best, Deep Creek, \$8—SHIP and FLOORING PLANK, \$26—London WHITE LEAD, \$4 25—American do. \$3 75—Boiled OIL, \$1 37½—FEATHERS, 50 to 62½ cts—COTTON, 18 to 20 cts.—Maryland TOBACCO, the only sales that we have been able to obtain an account of, is 2 hds. from Patuxent, 1 crop, at \$8—1 second, at \$5—Virginia TOBACCO, little in market, and no demand for it.

Printed every Friday at \$4 per annum, for JOHN S. SKINNER, Editor, by Joseph Robinson, at the N. W. corner of Market and Belvidere streets, Baltimore, where every description of Book and Job Printing is executed.—Orders from a distance for Printing and Binding, with proper directions, promptly attended to.